

REMARKS

Claims 1-13 are pending. Claims 1-5 and 9-13 stand rejected. Claim 8 is objected to for improper form. Claims 6-8 are allowed.

Claims 1, 2, 8, and 9 have been amended. No new matter has been added.

The examiner has objected to claim 8 because it contains an informality; i.e., the term "second compression" should be "second expression."

Applicant, through his attorney, wishes to thank the examiner for his observation regarding the form of the claim and has made the appropriate correction. Accordingly, applicant submits that for the amendment made, the reason for the examiner's rejection of the claim has been overcome and the objection can no longer be sustained. Applicant respectfully requests that the objection be withdrawn and the claim allowed.

Claim 1 stands rejected under 35 USC 103(a) as being unpatentable over Chen ("Edge Enhancement of Remote Sensing Image Data in the DCT Domain"). It is the examiner's position that "Chen teaches the method of performing linear contrast stretching in the DCT Domain for MPEG video. It is well known in the art to store a method in memory as computer readable instructions for use by a microprocessor. (Official Notice). It would have been obvious ... to store the method of Chen as computer readable instructions for use by a microprocessor." Claims 2-4 stand rejected under 35 USC 103(a) as being unpatentable over Chen in view of USP no. 6,236,751 to Farrell. It is the examiner's position that with regard to claim 2 "equation 3 on page 914, Chen teaches the method of linear contrast enhancement stretching. Chen does not teach that the MIN is a shifting parameter or that $255/(MAX-MIN)$ is a stretching factor. Farrell teaches that the MIN is a shifting parameter... It would have been obvious ... to use the equation of Chen for contrast stretching as it is equivalent to the classic dynamic range modification equation as shown by Farrell. With regard to claims 3 and 4, "Chen

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teaches the method of performing the linear contrast stretching on only the DC components. It would have been obvious ... that the DCT [β] has only one non-zero value that is equal to $8x\beta$ as it is a common characteristic of the DC component of a Discrete Cosine Transform. (Official Notice).

Claim 5 is rejected under 35 USC 103(a) as being unpatentable over Chen in view of USP no. 6,298,166 to Ratnakar. It is the examiner's position that "Chen teaches the method of contrast stretching the DCT domain. Chen does not teach storing the method in non-volatile random access memory electrically coupled to a microprocessor. Ratnakar teaches the use of a non-volatile random access memory electrically coupled to a microprocessor in order to store the compressed ... technique. It would have been obvious ... to combine the method of Chen with the storage method of Ratnakar in order to store the method for use by a microprocessor. Claims 9-13 are rejected under 35 USC 103(a) as being unpatentable over Chen and Ratnakar as applied to claim 5 and further in view of USP no. 5,774,206 to Wasserman. With regard to claims 9 and 10, "Chen and Ratnakar teach the method and system of contrast stretching in the DCT Domain as shown above for claims 5 and 1. Chen and Ratnakar do not specifically teach the contrast stretching performed in an MPEG-2 decoder. Wasserman teaches an MPEG-2 algorithm incorporates the basic processes of the JPEG format. Wasserman further teaches the decoder could include other hardware components for performing digital signal processing. It would have been obvious ... to combine the MPEG system of Wasserman with the contrast stretching system of Chen and Ratnakar as the MPEG decoder contains the basic processes of a JPEG decoder. It would have been obvious to one of ordinary skill ... to insert the system of Chen and Ratnakar into the MPEG system of Wasserman before the IDCT in order to perform digital signal processing. With regard to claims 11 and 12, "Wasserman teaches the use of a microprocessor which controls the MPEG decompression hardware. Wasserman further teaches the control of the decompression hardware through the use of software instructions." With regard to claim 13, "Wasserman teaches the decoding using the timing mechanism with the MPEG stream to synchronize the audio and video. Wasserman further teaches the enabling and disabling of the decoding hardware using the

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control registers. It would have been obvious ... to use the timing mechanism with the control register in order to synchronize the audio and video."

A claimed invention is prima facie obvious when three basic criteria are met. First, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings therein. Second, there must be a reasonable expectation of success. And, third, the prior art reference or combined references must teach or suggest all the claim limitations.

Accordingly, applicant respectfully disagrees with, and explicitly traverses the examiner's reasons for rejecting the claims because the present invention is not obvious in view of Chen. However, in order to advance the prosecution of this matter, applicant has elected to amend independent claim 1 and 9 to more clearly state the invention. With regard to independent claim 1, this claim, as amended, now recites:

1. A memory storing computer readable instructions permitting a MPEG-2 decoder to perform a DCT-domain linear contrast enhancement stretching function on each DCT coefficient block corresponding to luminance data prior to performing an inverse discrete cosine transform (IDCT) function, wherein an intrablock type of said DCT block is processed in accordance with a first process and an interblock type of said DCT block is processed in accordance with a second process.

No new matter has been added. Support for this amendment may be found, in the written description on page 8, lines 20-25 and in independent claim 6. A similar amendment is made to claim 9.

Chen discloses an image processing system for contrast enhancement. As the written description notes (see page 3, line 19- page 4, line 10), the Chen system has significant deficiencies as to complexity and requiring post-processing information. Furthermore, as the written description notes "the Chen algorithm fails to discriminate between two different types of DCT blocks." (see page 3, lines 25-28.) Accordingly, Chen fails to provide any suggestion or motivation to process intrablock type DCT blocks

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with a first process and interblock type DCT blocks with a second process as is recited in the claims.

One would not look to the Chen reference to include two processes based on the type of DCT block, because Chen is silent on such processing. Hence, claim 1 is not rendered obvious in view of the Chen reference because Chen does not include all the elements recited in the claim and does not provide teaching, suggestion or motivation to develop the missing elements.

Having shown that Chen does not teach, suggest or motivate one to develop the novel features of recited in claim 1, applicant submits that the reason for the examiner's rejection of the claim has been overcome and the rejection can no longer be sustained. Applicant respectfully requests the withdrawal of the rejection and allowance of claim 1.

With regard to claims 2-5, which depend from claim 1, the examiner has rejected these claims based on the combination of the Chen reference with that of Farrell and Ratnakar.

As noted above Chen fails to disclose different processing based on the type of DCT block. Further, as the examiner states, Farrell teaches 255/(Max-Min) is a stretching factor and Ratnakar teaches the use of a non-volatile random access memory. Neither Farrell nor Ratnakar disclose or suggest using different processing algorithms based on the type of DCT block. Even if the references cited were combined, as suggested by the examiner, the combined device would not include all the elements claimed. The combined devices would not include or suggest "intra-block type of said DCT block is processed in accordance with a first process and an interblock type of said DCT block is processed in accordance with a second process," as is recited in the claims.

Having shown that the combined teaching of Chen and Farrell and Chen and Ratnakar is silent of type-based processing and none suggest or motivate one to develop such processing, applicant submits that the reason for the examiner's rejection of claims 2-5 has been overcome and the rejection can no longer be sustained. Applicant respectfully requests the withdrawal of the rejection and allowance of these claims.

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With regard to independent claim 9 and dependent claims 10-13, the examiner has rejected these claims based on the combination of the Chen reference with that of Ratnakar and further in view of Wasserman.

As noted above the combination of Chen and Ratnakar fails to disclose different processing based on the type of DCT block. Further, the examiner notes that Wasserman teaches the control of the decompression hardware through the use of software instructions. Wasserman fails to teach or disclose different processing based on the type of DCT block, as is recited in the claims. Accordingly, one would not be motivated to combine the teachings of Chen, Ratnakar and Wasserman to develop the novel features claimed. Even if the references cited were combined as suggested by the examiner, the combined device would not include all the elements claimed, as the combined devices would not include or suggest "sort[ing] into intrablocks and interblocks, wherein the intrablocks are processed using a first process and the interblocks are processed using a second process," as is recited in claim 9.

Having shown that the combined teaching of Chen, Ratnakar and Wasserman do not suggest or motivate one to develop the novel features of recited in claim 9, applicant submits that the reason for the examiner's rejection of the claims has been overcome and the rejection can no longer be sustained. Applicant respectfully requests the withdrawal of the rejection and allowance of the claims.

With regard to claims 10-13, these claims ultimately depend from claim 9, which has been shown to be allowable. Accordingly, claims 10-13, by virtue of their dependence from an allowable independent claim, are also allowable.

Applicant, through his attorney, wishes to thank the examiner for his indication of allowable subject matter in claims 6-8. However, for all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references.

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Having addressed the examiner's objections and rejections under 35 USC § 103, applicant submits that for the amendments and remarks made herein the reasons for the examiner's objections and rejections have been overcome and can no longer be sustained. Applicant respectfully requests reconsideration, withdrawal of the objections and rejections and that a Notice of Allowance be issued.

Should any unresolved issues remain that the examiner believes may be resolved via a telephone call, the examiner is invited to call applicant's attorney at the telephone number below.


No fees are believed necessary for the filing of this Amendment and Response.

Respectfully submitted,

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